

2019

**Washington State Ferry Terminal
Structural Inspection**
By the Bridge Preservation Office

Kingston Ferry Terminal

Location	Bridge No.	Type	Inspection Date	Report Received
Slip 2	104/10FT	Routine & FC	9/10/2019	11/18/2019

FC= Fracture Critical



Electronic Version G:\Term_Fac_Info\Terminal\Inspections\Bridge_Reports*.pdf
Also on the DOT Bridge website at <http://beist/InventoryAndRepair/Inventory/BRIDGE>
Additional Information and Fracture Critical Report are in the Bridge Works Program

BRIDGE INSPECTION REPORT

Page 1 of 8

Status: Released

Printed On: 11/13/2019

Agency: State Ferries

CD Guid: 23c34537-9f46-41cf-90fe-f7c520c7cbaf

Release Date: 11/13/2019

Program Mgr: Evan M Grimm

Br. No. 104/10FT

SID 0013685A

Br. Name KINGSTON (MAIN - SLIP 2)

Carrying SR104

Route On 00104

Mile Post 24.44

Intersecting APPLE TREE COVE

Route Under

Mile Post

Inspector's Signature CRT

Cert # G1325

Cert Exp Date 1/12/2022

Co-Inspector's Signature MDM

Inspections Performed

Report Type	Inspection Type	Date	Freq	Hours	Inspector	Cert No	Co-Insp.
Routine		9/10/2019	24	1.0	CRT	G1325	MDM
Fracture Critical		9/10/2019	24	1.0	CRT	G1325	MDM
Underwater		10/9/2017	60	5.0	RMP	G1215	JRWH
Special Feature	Ferry terminal	9/10/2019	24	1.0	CRT	G1325	MDM
Geometric		1/8/2014	72	1.0	GGI	GEOM	DJM

8 <input type="checkbox"/> Alignment (1661)	47 <input type="checkbox"/> Operating Tons (1552)	N <input type="checkbox"/> Bridge Rails (1684)	0 <input type="checkbox"/> No Utilities (2675)
7 <input type="checkbox"/> Deck Overall (1663)	1.32 <input type="checkbox"/> Op RF (1553)	N <input type="checkbox"/> Transition (1685)	0.00 <input type="checkbox"/> Asphalt Depth (2610)
7 <input type="checkbox"/> Superstructure (1671)	28 <input type="checkbox"/> Inventory Tons (1555)	N <input type="checkbox"/> Guardrails (1686)	1952 <input type="checkbox"/> Year Built (1332)
7 <input type="checkbox"/> Substructure (1676)	0.79 <input type="checkbox"/> Inv RF (1556)	N <input type="checkbox"/> Terminals (1687)	1991 <input type="checkbox"/> Year Rebuilt (1336)
9 <input type="checkbox"/> Culvert (1678)	5 <input type="checkbox"/> Operating Level (1660)	<input type="checkbox"/> Bridge Rail Ht (2612)	
8 <input type="checkbox"/> Chan/Protection (1677)	A <input type="checkbox"/> Open/Closed (1293)	<input type="checkbox"/> Design Curb Ht (2611)	
2 <input type="checkbox"/> Pier/Abut/Prot (1679)	6 <input type="checkbox"/> Structural Eval (1657)	<div style="border: 1px solid black; padding: 5px; text-align: center;"> RECEIVED NOV 18 2019 TERMINAL ENGINEERING </div>	
8 <input type="checkbox"/> Waterway (1662)	8 <input type="checkbox"/> Deck Geometry (1658)		
3 <input type="checkbox"/> Scour (1680)	9 <input type="checkbox"/> Underclearance (1659)		

NBIS Risk Category
 High Risk

Inspection Flags

<input type="checkbox"/> Soundings (2693)	<input type="checkbox"/> Measure Clearance (2694)	<input type="checkbox"/> Revise Rating (2688)	<input type="checkbox"/> Photos (2691)	<input type="checkbox"/> QA Flag (2695)
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BMS Elements

Element	Element Description	Total	Units	CS 1	CS 2	CS 3	CS 4
8125	Concrete Submerged Pile/Column	11	EA	11	0	0	0
8128	Steel Submerged Pile/Column	16	EA	16	0	0	0
8132	Concrete Pier Cap/Crossbeam	45	LF	45	0	0	0
8201	Steel Open Girder, (FC)	184	LF	184	0	0	0
8206	Steel Floor Beam	240	LF	236	0	4	0
8209	Steel Stringer	450	LF	450	0	0	0
8219	Steel Grid Deck Concrete Filled	1,800	SF	1,800	0	0	0
8224	Thin Polymer Overlay < 0.5" Thick	2,100	SF	2,100	0	0	0
8225	Non-skid Metal Surfacing	300	SF	250	50	0	0
8301	Apron Steel Orthotropic Deck	300	SF	300	0	0	0
8305	Apron Hinge Multi-Pin & Plate	13	EA	13	0	0	0
8307	Apron Lips & Pins	67	EA	67	0	0	0

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Program Mgr: Evan M Grimm

Br. No. 104/10FT	SID 0013685A	Br. Name KINGSTON (MAIN - SLIP 2)
Carrying SR104	Route On 00104	Mile Post 24.44
Intersecting APPLE TREE COVE	Route Under	Mile Post

BMS Elements (Continued)							
Element	Element Description	Total	Units	CS 1	CS 2	CS 3	CS 4
8312	Span Apron/Cab Gangplank Pivot/Raise/Rams/Fittings	2	EA	2	0	0	0
8341	Lift Beam (FC)	33	LF	33	0	0	0
8342	Live Load Hanger Bars (FC)	2	EA	2	0	0	0
8343	Apron Two Hinge Pin System/LL Hanger Pins (FC)	4	EA	4	0	0	0
8361	Scour	4	EA	4	0	0	0
8390	Fixed Bearing	2	EA	0	0	2	0
8408	Steel Sliding Plate Joint	24	LF	24	0	0	0
8413	Steel Tower/Steel A Frame	2	EA	2	0	0	0
8415	Steel Headframe	190	LF	190	0	0	0
8417	Tower Base Platform	264	SF	264	0	0	0
8418	Counterweight Guides	12	EA	12	0	0	0
8419	Concrete Counterweights	2	EA	2	0	0	0
8420	CTWT Sheaves/Shafts(FC)/Bearings/Anchor Blts.	12	EA	12	0	0	0
8451	Steel Pile Frame Wingwalls	68	LF	67	0	1	0
8460	Timber Pile Dolphins	1	EA	0	0	1	0
8462	Steel Pile Frame Dolphins	5	EA	5	0	0	0
8640	Moveable Pedestrian Gangplank	68	LF	0	0	68	0
8901	Protective Coating - Bridge	10,000	SF	9,900	0	100	0
8902	Protective Coating - Piling	35,000	SF	32,700	500	1,800	0
8907	Galvanizing	88	SF	88	0	0	0
8910	Safety Access Ladders	8	EA	8	0	0	0
8911	Safety Railing & Catwalks	122	LF	122	0	0	0

Notes
<p>0 GENERAL NOTES: For location reference: AHEAD on stationing is going OFFSHORE and lateral features are called out LEFT and RIGHT. Slip 2 starts at the bridge seat and goes offshore. See the attached "Layout" drawing found under the files tab. All of the intermediate and outer left shared steel dolphins are included in the Slip 1 report. Repairs and detailed inspection of offshore dolphins managed by WSF. cursory safety inspection performed by BPO. For Tie-up Slip 3 see Element 8640 (Movable Pedestrian Gangplank).</p>
<p>1 FRACTURE CRITICAL: Fracture Critical inspection of the top and bottom live load hanger pins and the tension elements of the welded two girder system; see attached FC Report.</p>

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Carrying SR104		Route On 00104	Mile Post 24.44
Intersecting APPLE TREE COVE		Route Under	Mile Post

Notes (Continued)

9 The WSDOT Bridge Preservation Dive Team performed an underwater inspection of the Kingston (Main-Slip 2) on October 9th and 10th, 2017. Piers inspected were the Slip 2 bridge seat, Slip 2 left tower, Slip 2 right tower, Tie-up slip Pier T1, and Tie-up slip Pier TS. This inspection also included the wingwalls piles and offshore dolphin piles. The underwater inspection occurred while a painting contractor was on site painting steel structures above water.

In general, all inspected elements were found to be in good condition with only minor defects noted. The Slip 2 steel tower piles protective wraps have failed below the water line. These piles have moderate section loss in the exposed corroded areas. There is coating failure on several wingwall and dolphin piles in each slip that is allowing surface corrosion. The timber pile dolphin has several crushed or broken piles on the slip side. Local scour around the piers was not noted. See layout and pile data spreadsheet for locations and specific details of pile defects.

Recommend re-attaching sinker blocks to ladders on Slip 2 inner left, Tie-up Slip 3 outer left and outer right dolphins. Maintain a 60-month underwater inspection frequency.

1677 CHANNEL PROTECTION:
Underwater Inspection Findings:
Channel bottom consists of 2" to 4" diameter cobbles, sand, shells, as well as areas of erodible clay substrate. An erodible clay shallow cliff was found slip side of Slip 2 right inner dolphin. Clay is prevalent throughout the facility. Some broken-off remnant timber piles are at the wingwall and tower pile locations.

1680 SCOUR:
A scour code of 3 (calculated scour critical) is used programmatically for all WSF slips (bridge seats and tower piles). See Note 8361.

2694 CLEARANCES:
Clearance checked on 01/08/2014 and confirmed in 2017. Minimum clearance measured to be 15' 8" below the west bottom edge of pedestrian bridge to the north white solid line stripe.

8125 CONCRETE SUBMERGED PILE/COLUMN:
Construction spalls noted on a few precast piles.

Underwater Inspection Findings:
Slip 2 bridge seat and Tie-up Slip 3 gangplank are supported by eleven 18" prestressed octagonal concrete piles. Concrete piles have typical marine growth in the intertidal zone (ITZ).

See attached underwater layout for locations and details.

8128 STEEL SUBMERGED PILE/COLUMN:
Protective coating on the steel tower piles is beginning to fail (Photos #77, #78, and #85).

Underwater Inspection Findings:
All steel piles typically have marine growth coverage to nearly 100%. Steel tower piles typically have extensive coating failure and scattered pitting up to 3/16" deep in areas of failed protective wrapping (Photo UW-1).

See attached underwater layout and pile data spreadsheet for locations and details.

8132 CONCRETE PIER CAP:
A few vertical leaching cracks in caps.

8201 STEEL OPEN GIRDER, (FC):
There are utility brackets welded to the left girder web in the tension zone.

8206 STEEL FLOORBEAM:
Floorbeam 0 left and right ends have cope cracks painted over in June 2009 which are beginning to show through the paint (Photo #67 right end). MONITOR REPAIR #10. No change in 2019.
Floorbeam 9, right and left side bottom gussets have 1/8" thick laminar rust (Photo #66). REPAIR #15.

8219 CONCRETE FILLED STEEL GRID DECK:
Areas of rust in deck bottom have been painted over. Some deterioration of stay in place forms under each curb line has been painted over but is still visible. This defect does not affect the structural capacity of the bridge.

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Carrying SR104		Route On 00104	Mile Post 24.44
Intersecting APPLE TREE COVE		Route Under	Mile Post

Notes (Continued)

- 8224 THIN POLYMER OVERLAY:
Transfer span overlay has grid deck shadow from rust lifting overlay 1/8" with no spalling yet (Photo #74).
- 8225 NON-SKID METAL SURFACING:
Apron surfacing has scrapes and patches, with small spots missing along the transfer span joint (Photo #88).
- 8301 APRON STEEL ORTHOTROPIC DECK:
Apron deck plate has a few traffic scars.
Light corrosion and scrapes on bottom of apron (Photo #79).
- 8307 APRON LIPS AND PINS:
Twelve lips, each 19" wide x 42" long.
Some surface corrosion at anchor bolts.
Some of the apron hinge nuts are not snug, but cotter pin is holding in place (Photo #70).
- 8342 LIVE LOAD HANGER BARS (FC):
Underwater Inspection Findings:
Hanger bars are straight and intact with some marine growth in the ITZ. Both live load hanger stops are round steel cylindrical stops and are intact (Photo UW-2).

See attached underwater layout for locations and details.
- 8343 APRON TWO HINGE PIN SYSTEM/LL HANGER PINS (FC):
Upper and lower live load hanger locking pins are included in this element. The upper pins were ultrasonically tested 9/15/2015. See results in the FC Report.
Upper pin shear plates welded to the headframe have inside welds that are undercut.
Upper left pin has cotter pin not fully bent to secure (Photo #82). REPAIR #16.
Lower pins are cycled through and visually inspected.
Lower left pin has surface rust (Photo #86). REPAIR #17.
- 8361 SCOUR:
Scour is evaluated as part of the underwater inspection and the annual soundings program performed by WSF.

Underwater Inspection Findings:
Quantity includes Slip 2 bridge seat, both towers as one pier, Tie-up Slip 3 Piers T1 and Pier TS. Ground elevations were taken at random piles, but no significant changes in depth were found near the piers.

See attached underwater layout for locations and details.
- 8390 FIXED BEARING:
Bearings are covered in dirt and are rusty where exposed.
Left bearing has no clearance when transfer span is moved up and down. The ends of anchor bolts jam against the upper rocker plate and have worn 1/8" (take photo during next inspection).
- 8408 STEEL SLIDING PLATE:
Bridge seat sliding plate above compression seal.
- 8413 STEEL TOWER:
Grout pads have leaching cracks.
- 8417 TOWER BASE PLATFORM:
Leaching cracks in tower pedestals and caps.
- 8418 COUNTERWEIGHT GUIDES:
Guides on right tower have some surface rust.
- 8419 CONCRETE COUNTERWEIGHTS:
Upper pin on each counterweight has a cotter pin which is not fully bent (Photo #83). REPAIR #16.

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Carrying SR104		Route On 00104	Mile Post 24.44
Intersecting APPLE TREE COVE		Route Under	Mile Post

Notes (Continued)**8451 STEEL PILE FRAME WINGWALLS:**

The outer rubbing timber on the left wingwall is rotten with a 1" shell on top (Photo #71).
Seven plumb and five batter steel piles per wingwall. Piles showing laminar rust at high water line (Photos #72 and #73.)
Rubbing timbers are rotten from high tide line down for all but two timbers of the left wingwall and about half of timbers for the right wingwall. Replacement is planned for 11/2019. (Photo #84).

Underwater Inspection Findings:

Wingwall piles typically have marine growth up to 1" thick and nearly full coverage at and below the ITZ. Left wingwall fender piles have pitting areas with up to 20% section loss at mudline. Right wingwall piles have small areas with up to 50% section loss. Thickness readings were taken in bad areas and adjacent good areas to determine section loss (Photo UW-3).

See attached underwater layout and pile data spreadsheet for locations and details.

8460 TIMBER PILE DOLPHINS:

Tie-up Slip 3 - 70 Timber Pile Dolphin with abraded timbers and leaning 3 degrees.
Right Inner Dolphin (RI) upper trellis for facing Pile 2A is torn and facing is rotated out of alignment. Repair was planned for shortly after 2019 inspection.

Underwater Inspection Findings:

Tie-up Slip 3 inner right timber dolphin rubbing faces are missing (Photo UW-4). Two timber piles are crushed and splintered at the surface (UW-5). There were two sets of steel cable wraps below water, the lower wraps were intact and the upper wraps were not.

See attached underwater layout and pile data spreadsheet for locations and details.

8462 STEEL PILE FRAME DOLPHINS:

Full inspections of Slip 2 and Tie-up Slip 3 offshore structures performed by WSF (See Layout).
Rubbing surfaces intact and functional on all dolphins.

Underwater Inspection Findings:

All 5 steel pile frame dolphins were inspected. Level II cleanings and random thickness readings were taken of the steel near mudline (Photo UW-6). Thickness readings were also taken of pitted or areas of section loss (Bad) and adjacent (Good) areas for comparison and to estimate section loss.

Slip 2 Left Inner (LI) ladder sinker block is resting against Pile C1 slip side (Photo UW-7).

Slip 2 Right Inner (RI) is a 6 steel pile frame dolphin and has new extruded fenders on the Tie-up Slip 3 side Piles C1 and C2 (Photo UW-8).

Slip 2 Right Outer (RO) piles appeared new with no defects (such as coating failure) noted.

Tie-up Slip 3 Left Outer (TLO) is an 11 steel pile frame dolphin. It has new extruded fenders attached to the Slip 2 side Piles D1, D2, and D3 (Photo UW-9). Up to 10% coating failure with some pitting is typical bottom 10-ft. Pile 3B has 2 sq. ft. area of coating failure with up to 25% section loss (Photo UW-10). Pile A2 has 1.5 sq. ft. area of section loss with 3/4" diam. pit up to 1/4" deep (Photo UW-11) all within a 1-ft full circumference band of coating failure.

Tie-up Slip 3 Right Outer (TRO) piles typically have small areas of pitting up to 1/4" deep at the bottom 2-ft (Photo UW-12).

See attached underwater layout and pile inspection data spreadsheet for locations and details.

8640 MOVEABLE PEDESTRIAN GANGPLANK:

TIE UP SLIP 3 has a 60' long x 4' wide steel frame ramp that has a 6' long x 4' wide apron hinged at its offshore end (Photos #80 and #87). BMS Quantity includes 2 ft for shore side cable tieback anchorage.

The apron has four casters attached to its underside. These casters rest on the ferry deck when the support hoist lowers the gangplank to the ferry deck. Castors are covered with surface rust (Photo #81).

The right side castor wheel is frozen.

Shore end pin connection has a small amount of play, allowing for a small but perceptible shift as span is operated past horizontal.

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Intersecting APPLE TREE COVE		Route Under	Mile Post

Notes (Continued)

8901 PROTECTIVE COATING - BRIDGE:

Paint quantity is a rough estimate.

Paint is failing on girder flange edges and bolts, with scattered rust blooms forming.

8902 PROTECTIVE COATING - PILING:

Steel piles in towers, wingwalls, and dolphins have seam rust on weld joints and rust blisters.

Tower piles have large surface rust blooms.

Underwater Inspection Findings:

Underwater coating condition estimates are from the average groundline of a specific group of piles to the water surface. Most steel piles have some degree of coating failure.

All tower piles (TL and TR) typically have failed wraps hanging on piles like peeled bananas at the bottom 4-ft. See Photo UW-1. Left tower piles have up to 50% coating failure in exposed areas and right tower piles have up to 75% coating failure in exposed areas.

LW piles have up to 20% coating failure of the bottom 10-ft (Photo UW-13). The backside of Row 3 batter piles appears to be sandblasted from the Aux. Slip 1. A large mound of sand and sea shells are behind these batter piles.

RW piles have up to 10% coating failure bottom 5-ft.

RI piles (six) have a typical 6" band of paint discoloration with some paint bubbles (Photo UW-14).

TLW has coating failure where Pile 1B has a whole 2 sq. ft. area of failure.

TRW has coating failure; Pile 1A has 5% coating failure in an 8-ft length, Pile 3B has up to 2% coating failure full height, and Pile 2C has 1 sq. ft. area of failure.

TRO piles have coating failure. Pile B1 has full height coating failure up to 5%. Pile D2 has coating failure up to 25%.

TLO piles have coating failure. Pile A1 has 5% coating failure bottom 10-ft. Piles A2 and A3 have 10% coating failure bottom 10-ft. Piles B1 and B2 have 1% coating failure full height. Pile B3 has 6 sq. ft. of coating failure. Pile C1 has 5% coating failure bottom 19-ft. Pile D1 has 3 sq. ft. coating failure. Pile D3 has 25% coating failure bottom 10-ft.

See attached underwater layout and pile inspection data spreadsheet for locations and details.

8907 GALVANIZING:

Galvanizing on clevis shackles and cable end fittings are in excellent condition. Tie-up lines are moderately corroded.

8910 SAFETY ACCESS LADDERS:

One ladder on the right tower with a fall arrest climber.

One ladder on each wingwall and five dolphin ladders.

Underwater Inspection Findings:

Slip 2 left inner dolphin (LI) ladder sinker block is detached from the ladder and is resting against Pile 1C (Note 8462 Photo UW-7).

Slip 2 right outer dolphin (RO) ladder is intact with sinker block attached to bottom (Photo UW-15) with some section loss of hardware at connection.

Tie-up Slip 3 left outer dolphin (TLO) ladder sinker block is detached from the ladder and is resting on the bottom directly below the hanging ladder between Piles 3C and 3D (Photo UW-16).

Tie-up Slip 3 right outer dolphin (TRO) ladder sinker block (Photo UW-17) is detached and resting on the bottom directly below the hanging ladder between Piles 1B & 1C.

See attached underwater layout and pile inspection data spreadsheet for locations and details.

Repairs

Repair No	Pr	R	Repair Descriptions	BMS	Noted	Maint	Verified
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Repairs (Continued)

Repair No	Pr	R	Repair Descriptions	BMS	Noted	Maint	Verified
10	M	B	MONITOR Floorbeam 0 ends which are cracked about 1/2" at copes. No change in 2019 - CRT/MDM.	8206	9/2/2003		
15	1	B	In areas of rust blooms and laminar rust on Floorbeam 9, clean to bright steel, prime, and paint.	8206	9/15/2015		
16	2	B	Verify that the cotter pins are sufficiently secured at the following locations: Upper left live load pin, Upper middle pin at each counterweight. In 2017, these cotter pins were only marginally bent.	8343, 8419	9/20/2017		
17	1	B	Grease the lower live load pins to limit rust formation.	8343	9/10/2019		

Inspections Performed and Resources Required

Report Type	Date	Freq	Hrs	Insp	CertNo	Coinsp	Note	
Routine	9/10/2019	24	1.0	CRT	G1325	MDM		
Resources	Hours	Min	Pref	Max	Freq Date	Need Date	Override	Notes
Boat		K	K	K				Boat needed to access underside of transfer span and in water elements
Scheduling Restrictions								Inspections must be done without interfering with Ferry landings and departures.
Third Party Notification								Washington State Ferries Terminal Staff may participate in this inspection as necessary to gather repair information. Contact Tom Castor at WSF 206-515-3727. Send QN's (Quick Notices) to WSF Shore Operations, Maintenance and Vessel Operations.
Third Party Notification								Call USCG Seattle Sector (206.217.6001) prior to arrival and after departure for the day.
Fracture Critical	9/10/2019	24	1.0	CRT	G1325	MDM		
Resources	Hours	Min	Pref	Max	Freq Date	Need Date	Override	Notes
Special Equipment		UT	UT	UT				FC inspection due every 24 months. UT inspection of top and bottom live load hanger pins due every 72 months. UT inspection last performed 9/15/2015. Next UT inspection scheduled for 2021.
Underwater	10/9/2017	60	5.0	RMP	G1215	JRWH	Underwater inspection by WSDOT Bridge Preservation Dive Team.	
							Changed the number of Spans from 20 to 3 per RMP - NAF	
Resources	Hours	Min	Pref	Max	Freq Date	Need Date	Override	Notes
Boat	5.00							Used 24' Duckworth launched from adjacent Port of Kingston boat ramp. Parking fee was \$7/day in 2017. Kiosk accepted credit cards.
Third Party Notification								Contact Tom Castor at WSF 206-515-3727 to find out about repair contracts, on site contacts, and his concerns for this structure. Send QN's (Quick Notices) to WSF Shore Operations, Maintenance and Vessel Operations 48hrs prior to inspection.
Third Party Notification								Call USCG Seattle Sector (206.217.6001) prior to arrival and after departure for the day.
Third Party Notification								2017 UW on site contact to coordinate painting contractor and Dive Team was WSF Constr. Engineer Josh Reynolds @ (206)915-2088.

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Inspections Performed and Resources Required (Continued)

Report Type		Date	Freq	Hrs	Insp	CertNo	Coinsp	Note	
Special Feature		9/10/2019	24	1.0	CRT	G1325	MDM	The Special Inspection is done to look at moving portions of the Ferry Terminal including the Lift Beam, Live Load Hanger, Lift Span, Counter Weight Sheaves, and the Apron.	
Resources	Hours	Min	Pref	Max	Freq	Date	Need Date	Override	Notes
Boat			K						
Geometric		1/8/2014	72	1.0	GGI	GEOM	DJM	Added Clearance card and 2694 note. Adjusted the vertical clearances.	



VISUAL FRACTURE CRITICAL INSPECTION REPORT

Bridge Name: KINGSTON (MAIN-SLIP 2) **Date:** 9/10/2019
Bridge No: 104/10FT **Hours:** 1
Structure ID: 0013685A **Inspector ID #:** G1325
Structure Type: MOVEABLE BRIDGE **Lead Inspector Initials:** CRT
Agency: WSF **Co-Inspector Initials:** MDM
Milepost: 24.00

Lead Inspector Signature:

Co-Inspector Signature:

David R Bruce For MDM

Inspected items and procedures:

Welded Girder

1. As required, use mirrors or other equipment to check inside surfaces of FCM's. Note: FCM = Fracture Critical Element
2. Check for loose or unevenly loaded member sub-elements.
3. Check all welds at connection plates, with emphasis on skip welds and changes in section.
4. Check for any welds, including plug, tack, or repair welds. Record location of welds, regardless of condition, and document weld type and category.
5. Check FC members and associated connection or gusset plates for areas of heavy or pitted corrosion, nicks, gouges, sharp bends, and collision damage. Record location of all these conditions and estimated section loss, if applicable.
6. Check all heat straightened or repaired areas. Record location of these areas, regardless of condition.

Pins and Anchor Bolts

1. As required, use mirrors or other equipment to check inside surfaces of FCM's.
2. Check for pitting, laminar rust, surface deformation, and pack rust. It is important to check the pin, pin nuts, and all members surrounding the pin for this kind of steel deterioration.
3. Check for mobility and noise of pin and surrounding members. If the pin is physically "frozen" it is important to note this because the added stress can affect other members in the structure.
4. Observe and record abnormalities like; alignment, pin wear, loose pin nuts, and amount of nut engagement. It's important to note that full nut engagement is when the nut is flush with the pin or the pin is extending past the nut.
5. Check for paint system failure on pin nuts, pin, and surrounding members.

FCM Location	FCM Type	FCM Per Girder or Truss Line	Beist Server Plans		
			Sh. No.	Contract	Sh. Name
Transfer Span Girder	Tension Welds	1	T2		See Attached Files
Lift Beam	Hanger Slotted Bar, Pin	2	T1		See Attached Files
Tower	Live Load Hanger Pin	1	T1		See Attached Files

Note: FCM = Fracture Critical Member



VISUAL FRACTURE CRITICAL INSPECTION REPORT

Bridge Name: KINGSTON (MAIN-SLIP 2) **Date:** 9/10/2019
Bridge No.: 104/10FT **Hours:** 1.0
Structure ID: 0013685A **Inspector ID #:** G1325
Structure Type: MOVEABLE BRIDGE **Lead Inspector:** CRT
Agency: WSF **Co-Inspector:** MDM
Milepost: 24.00

Truss / Girder	Span	Location	Feature Inspected	Detail Description	Remarks
Left	20	Girder	Welds	Flanges, Web, Stiffeners, and Fittings in Tension	No Defects Noted.
Left	20	Girder	Welds	Utility welds on webs in tension	Tension zone utility bracket welds.
Left	20	Tower	Pin	Upper Live Load Hanger Bar Pin	No Defects Noted.
Left	20	Lift Beam	Pin*	Lower Live Load Hanger Bar Pin	Surface rust on pin (Photo #86)
Left	20	Lift Beam	Slotted bar	Live Load Hanger Bar	No Defects Noted.
	20	Lift Beam	Other	Built up Member	Lift Beam to girder connection bolts rusty.
Right	20	Girder	Welds	Flanges, Web, Stiffeners, and Fittings in Tension	No Defects Noted.
Right	20	Girder	Welds	Utility welds on webs in tension	Unpainted Utility Bracket Welds.
Right	20	Tower	Pin	Upper Live Load Hanger Bar Pin	No Defects Noted.
Right	20	Lift Beam	Pin*	Lower Live Load Hanger Bar Pin	No Defects Noted.
Right	20	Lift Beam	Slotted Bar	Live Load Hanger Bar	No Defects Noted.

*Lower pins do not return useable UT results. Pins are to be visually inspected only.



Bridge Name:	KINGSTON (MAIN-SLIP 2)	Date:	9/10/2019
Bridge No:	104/10FT	Hours:	1.00
Structure ID:	0013685A	Inspector ID #:	G1325
Structure Type:	MOVEABLE BRIDGE	Lead Inspector's Initials:	CRT
Agency:	WSF	Co-Inspector Initials:	MDM
Milepost:	24.00		

Inspected items and procedures:

Pins

1. When possible, test from both ends of pins.
2. Verify pin length shown on back reflection with plans. If back reflection does not match the plans, conduct manual length measurement and document correct pin length.
3. Start test with transducer at or near pin center for back reflection check, then run transducer around full perimeter of pin, searching for indications or significant loss of back reflection.
4. Whenever the test suggests that there is a defect in a pin, store and print out the indication with all associated equipment and settings documented. The location of the transducer shall also be documented using a clock hand convention (1 O'clock to 12 O'clock).

UTM Location	UTM Type	UTM Per Girder or Truss Line	'Beist' Server Plans		
			Sh. No.	Contract	Sh. Name
Towers	Shouldered Pins	1	T1		See Attached File

Note: UTM = Ultrasonic Tested Member

CS1: Number of pins and associated connection plates that are in good condition. There may be minor rust or shallow surface deformations on the exposed pin surfaces. Minor amounts of rust powder or paint damage may be present suggesting minor pin rotation in place. No pack rust is present between associated connection plates. There is no noise associated with the pin connection. Apron and Live Load pins are effectively inspected by visual means. When UT is possible, it can be used as a vehicle to downgrade a pin due to indications. Pins that cannot be U.T'd because of geometry can still be in CS1.

CS2: Number of live load hanger pins that have throw mechanism repairs. Number of hinge pins that have plate repairs, replaced keeper bars or cotter pins. Ultrasonic Testing: Pins with indications less than 10% of the far shoulder reflection height.

CS3: Number of pins and associated connection plates that have defects that may affect the strength or serviceability of the bridge. Significant corrosion may be present, suggesting that pins are frozen in place. Significant abnormalities may be observed in alignment, pin wear, or deck joint movement. Pack rust may be present between connection plates that place a jacking force between the plates and pin nuts. The connection may have significant amounts of rust powder and/or make noise under loading. Pins that can be UT inspected have indications between 10 and 30 percent of the far shoulder reflection height.

CS4: Number of pins and associated connection plates that have defects that are judged to affect the strength or serviceability of the bridge. There are frozen pins designed for free rotation as part of normal bridge movement. Pack rust is present between connection plates that is causing distortion/displacement of plates or pins. Pins that can be UT inspected have indications greater than 30 percent of the far shoulder reflection height. Pin replacement is required.



Washington State Department of Transportation

PIN'S INSPECTION SCHEDULE

Bridge Name: KINGSTON (MAIN-SLIP 2)
Bridge No.: 104/10FT
Structure ID: 0013685A
Structure Type: MOVEABLE BRIDGE
Agency: WSF
Milepost: 24.00
Date: 9/10/2019
Hours: 1.00
Inspector ID #: G1325
Lead Inspector: CRT
Co-Inspector: MDM

Truss / Girder	Span	Location	Detail Description	Redundant	Condition State		Freq. (Months)	UT Inspection Date (YEAR)	Next Inspection Date (YEAR)
					VT	UT			
Left	20	Tower Frame	Upper LL Hanger Pin	no	1	1	72	2015	2021
Left	20	Lift Beam	Lower LL Hanger Pin	no	1	N/A	72	2015	2021
Right	20	Tower Frame	Upper LL Hanger Pin	no	1	1	72	2015	2021
Right	20	Lift Beam	Lower LL Hanger Pin	no	1	N/A	72	2015	2021

Lower Pins do not return useable UT results. Only visual inspection is performed.



Washington State Department of Transportation

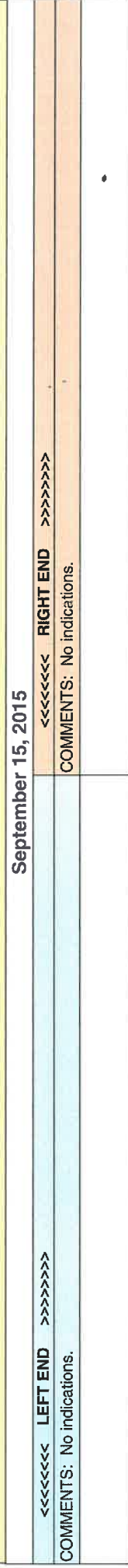
PIN SUMMARY SHEET

Bridge Name: KINGSTON (MAIN-SLIP 2)
Bridge No.: 104/10FT
Structure ID: 0013685A
Structure Type: MOVEABLE BRIDGE
Agency: WSF
Milepost: 24.00

Date: 9/10/2019
Hours: 1
Inspector ID #: G1325
Lead Inspector: CRT
Co-Inspector: MDM

Truss / Girder	Span	Location	Detail Description	Condition State						
				2007	2009	2011	2013	2015	2017	2019
Left	20	Tower	Upper LL Hanger Pin	1	1	1	1	1	1	1
Left	20	Lift Beam	Lower LL Hanger Pin	1	1	1	1	1	1	1
Right	20	Tower	Upper LL Hanger Pin	1	1	1	1	1	1	1
Right	20	Lift Beam	Lower LL Hanger Pin	1	1	1	1	1	1	1





WSBIS Field Inventory Report



Approved	
Revised	
RFC	
AAN	
Not Reviewed	

1001	2009	2132	1019	1021	2023	1156	1188	1196
Structure ID	Bridge Number	Bridge Name	Owner	County	City	Location	Latitude	Longitude
0013665A	104/10FT	KINGSTON (MAIN - SLIP 2)	22	18	0000	9.1 E JCT SR 3	47° 47' 41.40"	122° 29' 42.90"

1232	1256	1274	1286	1289
Feature Intersected	Facilities Carried	Region	Custodian	Temporary
APPLE TREE COVE	SR104	OL	22	N

☐ Shaded fields are to be reviewed each inspection.

Fields in *italics* are for information only & are not editable.

1332	1336	1430	2346	1340	1352	1356	1360	1364	1367	1370	1374	1378	1379	1382	1383	1386	1397	1310	1312	1291
Year Built	Year Rebuilt	Bridge Length	NBIS Length	Maximum Span Length	Lanes On	Curb to Curb Deck Width	Out to Out Deck Width	Sidewalk Left	Sidewalk Right	Min Vert Over Deck	Min Vert Under	Vert Code	Min Lat Under Right	Lat Code	Min Lat Under Left	Navigation Control Code	Approach Roadway	Skew Angle	Flared	Median
1952	1991	105		80	2	20.0	24.0	1.5	1.5	15' 08"	00' 00"	H	0.0	N	0.0	0	20	0	Y	0

2000	1432	1433	1434	1435	2440	1445	1451	1452	2402	1457	1459	1354	1451	1455	1459	2500	2501	2502	1413
Main Code	On Under	Hwy Class	Service Level	Route Number	Milepost	ADT	Truck %	Crossing Description	Crossing Description	Funct. Class	Lane Use Direction	Total Lanes Under	Horizontal Clearance Route Dir	Horizontal Clearance Reverse Dir	Max Vert Clearance Route	Min Vert Clearance Route	Max Vert Clearance Reverse	Min Vert Clearance Reverse	Route On
M	1	3	1	00104	24.44	3866	8	KINGSTON (MAIN - SLIP 2)	KINGSTON (MAIN - SLIP 2)	02	4	0	20' 00"	15' 10"	15' 10"	15' 08"			46

2000	1432	1433	1434	1435	2440	1445	1451	1452	2402	1457	1459	1354	1451	1455	1459	2500	2501	2502	1413
Main Code	On Under	Hwy Class	Service Level	Route Number	Milepost	ADT	Truck %	Crossing Description	Crossing Description	Funct. Class	Lane Use Direction	Total Lanes Under	Horizontal Clearance Route Dir	Horizontal Clearance Reverse Dir	Max Vert Clearance Route	Min Vert Clearance Route	Max Vert Clearance Reverse	Min Vert Clearance Reverse	Route Under

1832	1533	1636	1638	1536	1538	1539	1541	1544	1545	1546	1547	1548	1549	1551	1552	1553	1554	1555	1556
Main Span Material	On Under	Appr Span Design	Appr Span Design	Number Main Spans	Number Main Spans	Number Main Spans	Number Main Spans	Service On	Service Under	Deck Type	Wearing Surface	Membrane Protect	Deck Protect	Oper Rating Method	Oper Rating Factor	Oper Rating Method	Inv Rating Method	Inv Rating Factor	Inv Rating Method
3	15	1	01	1	1	3	3	1	5	4	N	N	N	1	47	1.32	1	28	0.79

Printed Date
11/13/2019

NBIS Risk Category
High Risk

2920	1930	2646	2648	2649	2654
Inspection	Date	Inspector	Cert No	Co-Inspector	Co-Inspector
Routine	9/10/2019	CRT	G1325	MDM	
Fracture Critical	9/10/2019	CRT	G1325	MDM	
Special Feature	9/10/2019	CRT	G1325	MDM	
Underwater					
UW/ Interim					

Inspection	Date	Inspector	Cert No	Co-Inspector
Condition				
Short Span				
Geometric				
Info				
Inventory				

BRIDGE INSPECTION REPORT

Page 1 of 21

Status: Released

Printed On: 11/13/2019

Agency: State Ferries

CD Guid: 23c34537-9f46-41cf-90fe-f7c520c7cbaf

Release Date: 11/13/2019

Program Mgr: Evan M Grimm

Br. No. 104/10FT **SID** 0013685A

Br. Name KINGSTON (MAIN - SLIP 2)

Carrying SR104

Route On 00104

Mile Post 24.44

Intersecting APPLE TREE COVE

Route Under

Mile Post

SI-75

0 Orientation

Photo Type: D - Deck

Orientation: Sea

Date: 9/20/2017

Repairs:

Deck Looking offshore.



SI-76

0 Orientation

Photo Type: E - Elevation

Orientation: Left

Date: 9/20/2017

Repairs:

Elevation looking left.



BRIDGE INSPECTION REPORT

Page 2 of 21

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Release Date: 11/13/2019

Program Mgr: Evan M Grimm

Br. No. 104/10FT **SID** 0013685A

Br. Name KINGSTON (MAIN - SLIP 2)

Carrying SR104

Route On 00104

Mile Post 24.44

Intersecting APPLE TREE COVE

Route Under

Mile Post

UW-0

0 Orientation

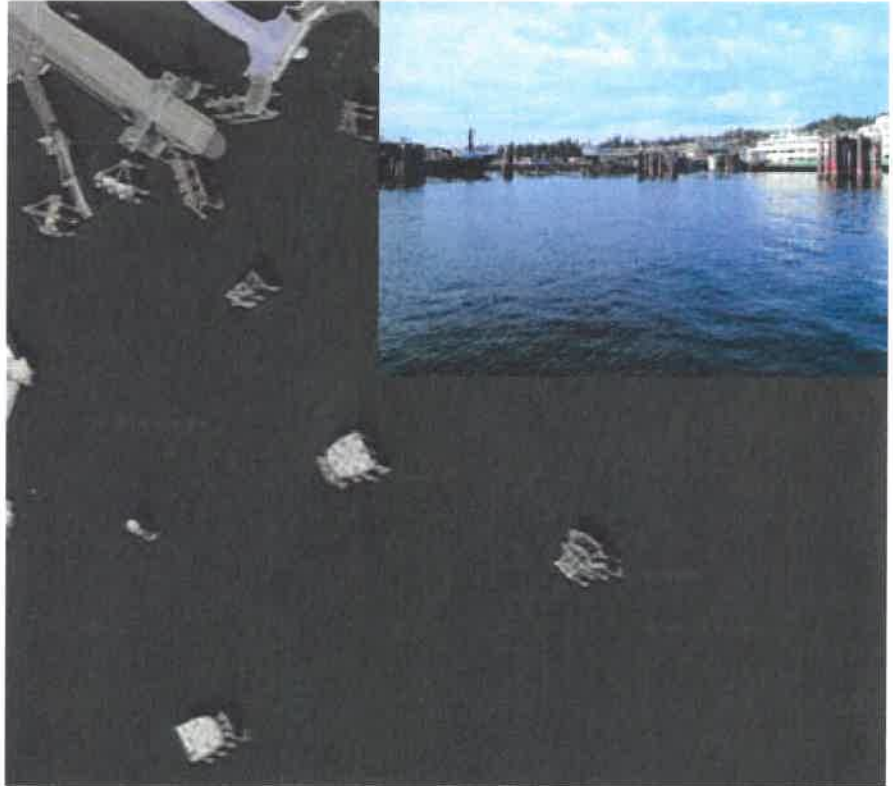
Photo Type: W - UW Cover

Orientation: DN

Date: 10/9/2017

Repairs:

Kingston (Main - Slip 2) Aerial View with Throat View Inset



SI-77

8128 Steel Submerged Pile-Column

Photo Type: G - General

Orientation: Left

Date: 9/20/2017

Repairs:

Left tower steel piles protective coating is beginning to fail.



BRIDGE INSPECTION REPORT

Page 3 of 21

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Release Date: 11/13/2019

Program Mgr: Evan M Grimm

Br. No. 104/10FT	SID 0013685A	Br. Name KINGSTON (MAIN - SLIP 2)	Route On 00104	Mile Post 24.44
Carrying SR104			Route Under	Mile Post
Intersecting APPLE TREE COVE				

SI-78

8128 Steel Submerged Pile-Column

Photo Type: G - General

Orientation: Shore

Date: 9/20/2017

Repairs:

Right tower steel piles protective coating is beginning to fail.



SI-85

8128 Steel Submerged Pile-Column

Photo Type: G - General

Orientation: Left

Date: 9/10/2019

Repairs:

Right tower Pile 1C wrap peeling off at ITZ.



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Release Date: 11/13/2019

Program Mgr: Evan M Grimm

Br. No. 104/10FT	SID 0013685A	Br. Name KINGSTON (MAIN - SLIP 2)	Route On 00104	Mile Post 24.44
Carrying SR104			Route Under	Mile Post
Intersecting APPLE TREE COVE				

UW-1

8128 Steel Submerged Pile-Column

Photo Type: G - General

Orientation: Right

Date: 10/9/2017

Repairs:

Typical tower pile with exposed corroded steel after wrapping failed. Tower left Pile 3D shown looking right.



SI-67

8206 Steel Floor Beam

Photo Type: R - Repair

Orientation: Shore

Date: 9/12/2011

Repairs: 10

Right (Shown) and Left cope cracks at FB 0 were painted over in 2009 and are now beginning to show the cracks again.



BRIDGE INSPECTION REPORT

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Agency: State Ferries
Program Mgr: Evan M Grimm

Br. No. 104/10FT **SID** 0013685A

Br. Name KINGSTON (MAIN - SLIP 2)

Carrying SR104

Route On 00104

Mile Post 24'44

Intersecting APPLE TREE COVE

Route Under

Mile Post

SI-66

8206 Steel Floor Beam

Photo Type: R - Repair

Orientation: Right

Date: 9/12/2011

Repairs: 15

Floorbeam 9, right and left side bottom gussets have 1/8" thick laminar rust, right side shown.



SI-74

8224 Thin Polymer Overlay < 0.5" Thick

Photo Type: G - General

Orientation: Shore

Date: 9/17/2015

Repairs:

Transfer span overlay has grid deck shadow from rust lifting overlay 1/8" with no spalling yet.



BRIDGE INSPECTION REPORT

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Release Date: 11/13/2019

Program Mgr: Evan M Grimm

Br. No. 104/10FT	SID 0013685A	Br. Name KINGSTON (MAIN - SLIP 2)	Route On 00104	Mile Post 24.44
Carrying SR104			Route Under	Mile Post
Intersecting APPLE TREE COVE				

SI-88

8225 Non-skid Metal Surfacing

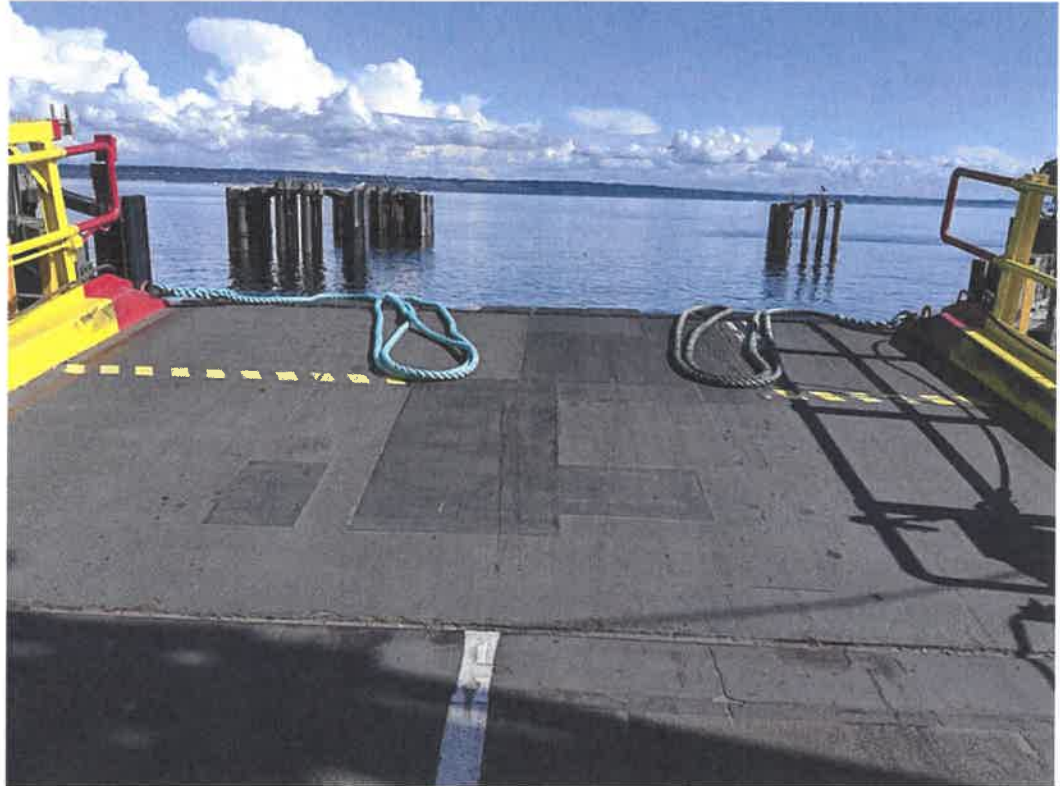
Photo Type: G - General

Orientation: Sea

Date: 9/10/2019

Repairs:

Apron surfacing has scratches and patches.



SI-79

8301 Apron Steel Orthotropic Deck

Photo Type: G - General

Orientation: Left

Date: 9/20/2017

Repairs:

Scattered paint scrapes and surface rust on bottom of apron.



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Release Date: 11/13/2019

Program Mgr: Evan M Grimm

Br. No. 104/10FT **SID** 0013685A

Br. Name KINGSTON (MAIN - SLIP 2)

Carrying SR104

Route On 00104

Mile Post 24.44

Intersecting APPLE TREE COVE

Route Under

Mile Post

SI-70

8307 Apron Lips & Pins

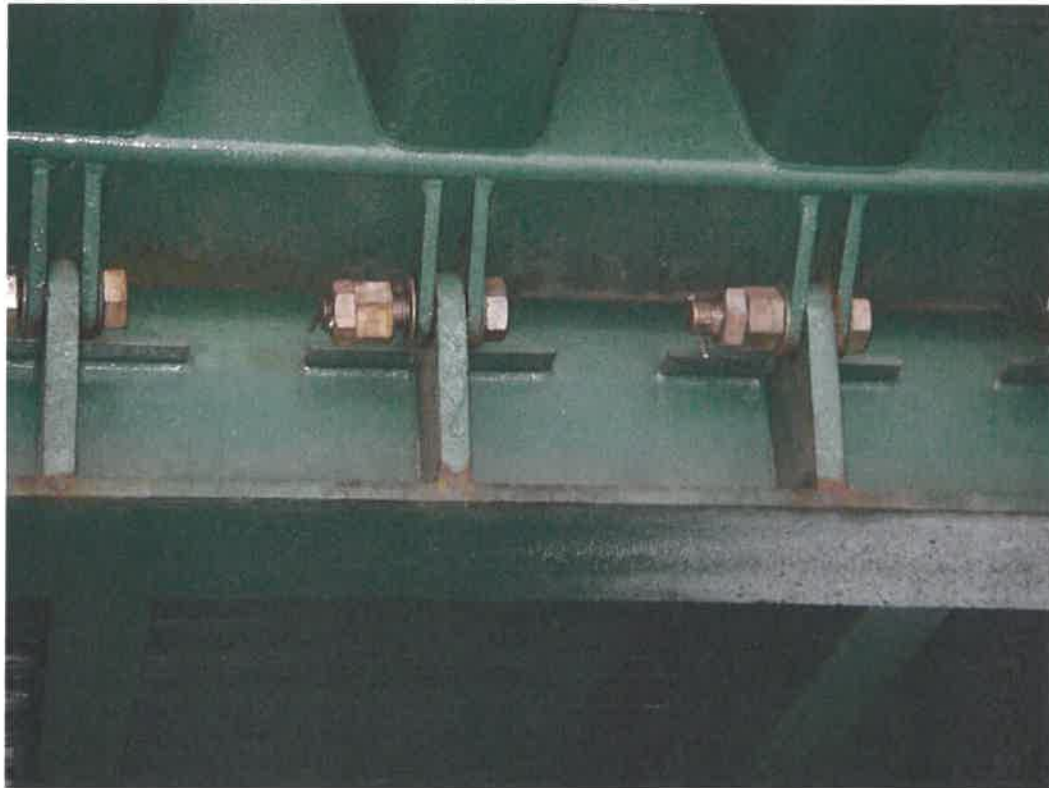
Photo Type: G - General

Orientation: Shore

Date: 9/12/2011

Repairs:

Some of the apron hinge nuts are not snug, but cotter pin is holding in place.



UW-2

8342 Live Load Hanger Bars (FC)

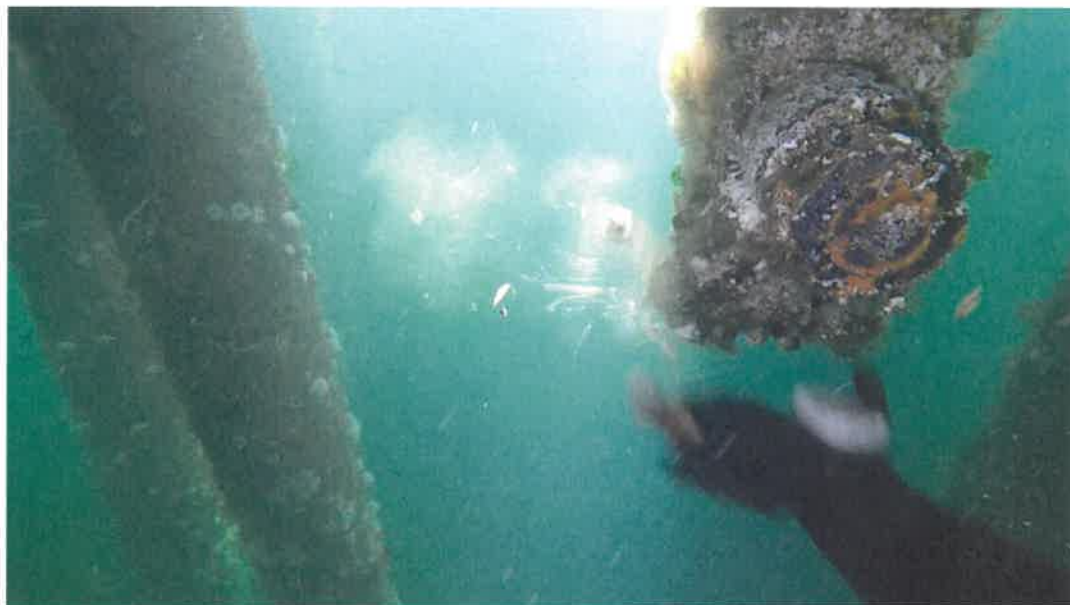
Photo Type: G - General

Orientation: Right

Date: 10/9/2017

Repairs:

Both live load hanger stops are round steel cylindrical stops and are intact. Right live load hanger shown looking right.



BRIDGE INSPECTION REPORT

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Status: Released

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Release Date: 11/13/2019

Program Mgr: Evan M Grimm

Br. No. 104/10FT	SID 0013685A	Br. Name KINGSTON (MAIN - SLIP 2)	Route On 00104	Mile Post 24.44
Carrying SR104			Route Under	Mile Post
Intersecting APPLE TREE COVE				

SI-82

8343 Apron Two Hinge Pin System/LL
Hanger Pins (FC)

Photo Type: R - Repair

Orientation: Shore

Date: 9/20/2017

Repairs: 16

Upper left live load pin showing
marginally bent cotter pin.



SI-86

8343 Apron Two Hinge Pin System/LL
Hanger Pins (FC)

Photo Type: R - Repair

Orientation: Sea

Date: 9/10/2019

Repairs: 17

Lower left live load pin has surface rust.



BRIDGE INSPECTION REPORT

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Release Date: 11/13/2019

Program Mgr: Evan M Grimm

Br. No. 104/10FT **SID** 0013685A

Br. Name KINGSTON (MAIN - SLIP 2)

Carrying SR104

Route On 00104

Mile Post 24.44

Intersecting APPLE TREE COVE

Route Under

Mile Post

SI-83

8419 Concrete Counterweights

Photo Type: R - Repair

Orientation: Right

Date: 9/20/2017

Repairs: 16

Counterweight cotter pin not fully bent.



SI-71

8451 Steel Pile Frame Wingwalls

Photo Type: G - General

Orientation: Shore

Date: 9/12/2011

Repairs:

Left wing wall, left end rub timbers are rotting at the top.



BRIDGE INSPECTION REPORT

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Status: Released

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Release Date: 11/13/2019

Program Mgr: Evan M Grimm

Br. No. 104/10FT **SID** 0013685A

Br. Name KINGSTON (MAIN - SLIP 2)

Carrying SR104

Route On 00104

Mile Post 24.44

Intersecting APPLE TREE COVE

Route Under

Mile Post

SI-72

8451 Steel Pile Frame Wingwalls

Photo Type: G - General

Orientation: Sea

Date: 9/12/2011

Repairs:

Left side wingwall piles showing laminar rust at high water line.



SI-73

8451 Steel Pile Frame Wingwalls

Photo Type: G - General

Orientation: Shore

Date: 9/12/2011

Repairs:

Right side wingwall piles showing laminar rust at high water line.



BRIDGE INSPECTION REPORT

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Status: Released

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Release Date: 11/13/2019

Program Mgr: Evan M Grimm

Br. No. 104/10FT **SID** 0013685A

Br. Name KINGSTON (MAIN - SLIP 2)

Carrying SR104

Route On 00104

Mile Post 24.44

Intersecting APPLE TREE COVE

Route Under

Mile Post

SI-84

8451 Steel Pile Frame Wingwalls

Photo Type: G - General

Orientation: Left

Date: 9/10/2019

Repairs:

Left wingwall missing bottom end of several rubber timbers, with mulitple showing rot in bolt holes. Right wingwall is similar.



UW-3

8451 Steel Pile Frame Wingwalls

Photo Type: I - In Depth

Orientation: Left

Date: 10/9/2017

Repairs:

Right wingwall piles have small areas with up to 50% section loss. Thickness reading taken on Pile 2B shown.



BRIDGE INSPECTION REPORT

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Status: Released

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Release Date: 11/13/2019

Program Mgr: Evan M Grimm

Br. No. 104/10FT **SID** 0013685A

Br. Name KINGSTON (MAIN - SLIP 2)

Carrying SR104

Route On 00104

Mile Post 24.44

Intersecting APPLE TREE COVE

Route Under

Mile Post

UW-4

8460 Timber Pile Dolphins

Photo Type: G - General

Orientation: Right

Date: 10/9/2017

Repairs:

Tie-up Slip 3 inner right timber dolphin rubbing faces are missing.



UW-5

8460 Timber Pile Dolphins

Photo Type: I - In Depth

Orientation: Right

Date: 10/9/2017

Repairs:

Two timber piles are crushed and splintered at the slip side surface.



BRIDGE INSPECTION REPORT

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Release Date: 11/13/2019

Program Mgr: Evan M Grimm

Br. No. 104/10FT **SID** 0013685A

Br. Name KINGSTON (MAIN - SLIP 2)

Carrying SR104

Route On 00104

Mile Post 24.44

Intersecting APPLE TREE COVE

Route Under

Mile Post

UW-6

8462 Steel Pile Frame Dolphins

Photo Type: G - General

Orientation: Sea

Date: 10/9/2017

Repairs:

Level II cleanings and random thickness readings were taken of the steel near mudline. RO Pile 2C shown looking offshore.



UW-7

8462 Steel Pile Frame Dolphins

Photo Type: G - General

Orientation: Sea

Date: 10/9/2017

Repairs:

Slip 2 Left Inner (LI) ladder sinker block is resting against Pile C1 slip side. Color reduced for visual clarity.



BRIDGE INSPECTION REPORT

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Status: Released

Printed On: 11/13/2019

Agency: State Ferries

CD Guid: 23c34537-9f46-41cf-90fe-f7c520c7cbaf

Release Date: 11/13/2019

Program Mgr: Evan M Grimm

Br. No. 104/10FT **SID** 0013685A

Br. Name KINGSTON (MAIN - SLIP 2)

Carrying SR104

Route On 00104

Mile Post 24.44

Intersecting APPLE TREE COVE

Route Under

Mile Post

UW-8

8462 Steel Pile Frame Dolphins

Photo Type: G - General

Orientation: Shore

Date: 10/9/2017

Repairs:

Slip 2 Right Inner (RI) is a 6 steel pile frame dolphin and has new extruded fenders on the Tie-up Slip 3 side Piles C1 and C2.



UW-9

8462 Steel Pile Frame Dolphins

Photo Type: G - General

Orientation: Shore

Date: 10/9/2017

Repairs:

Tie-up Slip 3 Left Outer (TLO) dolphin has new extruded fenders attached to the Slip 2 side Piles D1, D2, and D3.



BRIDGE INSPECTION REPORT

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Status: Released

Printed On: 11/13/2019

Agency: State Ferries

CD Guid: 23c34537-9f46-41cf-90fe-f7c520c7cbaf

Release Date: 11/13/2019

Program Mgr: Evan M Grimm

Br. No. 104/10FT	SID 0013685A	Br. Name KINGSTON (MAIN - SLIP 2)	Route On 00104	Mile Post 24.44
Carrying SR104			Route Under	Mile Post
Intersecting APPLE TREE COVE				

UW-10

8462 Steel Pile Frame Dolphins

Photo Type: I - In Depth

Orientation: DN

Date: 10/9/2017

Repairs:

TLO Pile 3B has 2 sq. ft. area of coating failure with up to 25% section loss.



UW-11

8462 Steel Pile Frame Dolphins

Photo Type: I - In Depth

Orientation: DN

Date: 10/9/2017

Repairs:

TLO Pile A2 has 1.5 sq. ft. area of section loss with 3/4" diam. pit up to 1/4" deep all within a 1-ft full circumference band of coating failure.



BRIDGE INSPECTION REPORT

Page 16 of 21

Status: Released

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CD Guid: 23c34537-9f46-41cf-90fe-f7c520c7cbaf

Release Date: 11/13/2019

Program Mgr: Evan M Grimm

Br. No. 104/10FT **SID** 0013685A

Br. Name KINGSTON (MAIN - SLIP 2)

Carrying SR104

Route On 00104

Mile Post 24.44

Intersecting APPLE TREE COVE

Route Under

Mile Post

UW-12

8462 Steel Pile Frame Dolphins

Photo Type: I - In Depth

Orientation: DN

Date: 10/9/2017

Repairs:

TRO piles typically have small areas of pitting up to 1/4" deep at the bottom 2-ft.



SI-80

8640 Moveable Pedestrian Gangplank

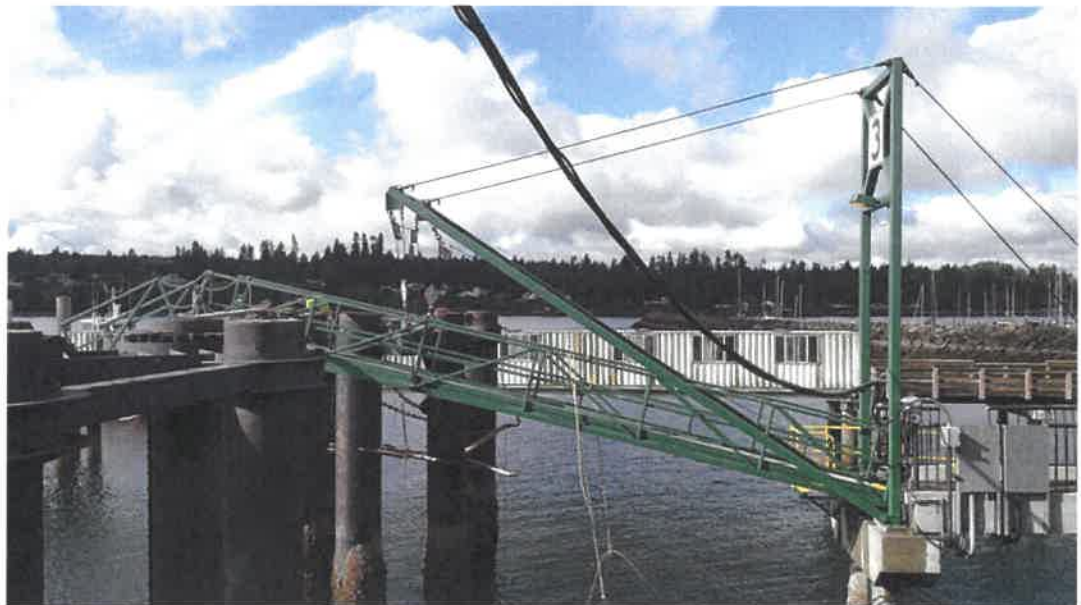
Photo Type: E - Elevation

Orientation: Right

Date: 9/20/2017

Repairs:

Tie Up Slip #3 Gangplank.



BRIDGE INSPECTION REPORT

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Status: Released
CD Guid: 23c34537-9f46-41cf-90fe-f7c520c7cbaf

Printed On: 11/13/2019
Release Date: 11/13/2019

Agency: State Ferries
Program Mgr: Evan M Grimm

Br. No. 104/10FT **SID** 0013685A

Br. Name KINGSTON (MAIN - SLIP 2)

Carrying SR104

Route On 00104

Mile Post 24.44

Intersecting APPLE TREE COVE

Route Under

Mile Post

SI-87

8640 Moveable Pedestrian Gangplank

Photo Type: D - Deck

Orientation: Sea

Date: 9/10/2019

Repairs:

Tie Up Slip #3 Gangplank.



SI-81

8640 Moveable Pedestrian Gangplank

Photo Type: G - General

Orientation: Right

Date: 9/20/2017

Repairs:

Rusty castor in Tie Up Slip #3
Gangplank.



BRIDGE INSPECTION REPORT

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Status: Released
CD Guid: 23c34537-9f46-41cf-90fe-f7c520c7cbaf

Printed On: 11/13/2019
Release Date: 11/13/2019

Agency: State Ferries
Program Mgr: Evan M Grimm

Br. No. 104/10FT	SID 0013685A	Br. Name KINGSTON (MAIN - SLIP 2)	Route On 00104	Mile Post 24.44
Carrying SR104			Route Under	Mile Post
Intersecting APPLE TREE COVE				

UW-13

8902 Protective Coating - Piling

Photo Type: I - In Depth

Orientation: UP

Date: 10/9/2017

Repairs:

Slip 2 Left Wingwall (LW) piles have up to 20% coating failure at the bottom 10-ft. LW Pile 3D is shown with 20% coating failure on its backside from 4o'clock to 8o'clock.



UW-14

8902 Protective Coating - Piling

Photo Type: (none)

Orientation: DN

Date: 10/9/2017

Repairs:

All Slip 2 Right Inner Dolphin (RI) piles have a typical 6" band of paint discoloration with some paint bubbles. RI Pile 2B shown looking offshore. Color reduced for clarity.



BRIDGE INSPECTION REPORT

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Status: Released

Printed On: 11/13/2019

Agency: State Ferries

CD Guid: 23c34537-9f46-41cf-90fe-f7c520c7cbaf

Release Date: 11/13/2019

Program Mgr: Evan M Grimm

Br. No. 104/10FT	SID 0013685A	Br. Name KINGSTON (MAIN - SLIP 2)	Route On 00104	Mile Post 24.44
Carrying SR104			Route Under	Mile Post
Intersecting APPLE TREE COVE				

UW-15

8910 Safety Access Ladders

Photo Type: G - General

Orientation: Right

Date: 10/9/2017

Repairs:

Slip 2 right outer dolphin (RO) ladder is intact with sinker block attached to bottom with some section loss of hardware at connection.



UW-16

8910 Safety Access Ladders

Photo Type: G - General

Orientation: DN

Date: 10/9/2017

Repairs:

Tie-up Slip 3 left outer dolphin (TLO) ladder sinker block is detached from the ladder and is resting on the bottom directly below the hanging ladder between Piles 3C and 3D.



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Status: Released

Printed On: 11/13/2019

Agency: State Ferries

CD Guid: 23c34537-9f46-41cf-90fe-f7c520c7cbaf

Release Date: 11/13/2019

Program Mgr: Evan M Grimm

Br. No. 104/10FT **SID** 0013685A

Br. Name KINGSTON (MAIN - SLIP 2)

Carrying SR104

Route On 00104

Mile Post 24.44

Intersecting APPLE TREE COVE

Route Under

Mile Post

UW-17

8910 Safety Access Ladders

Photo Type: G - General

Orientation: DN

Date: 10/9/2017

Repairs:

Tie-up Slip 3 right outer dolphin (TRO)
ladder sinker block is detached. Color
reduced for clarity.



BRIDGE INSPECTION REPORT

Page 21 of 21

Status: Released

Printed On: 11/13/2019

Agency: State Ferries

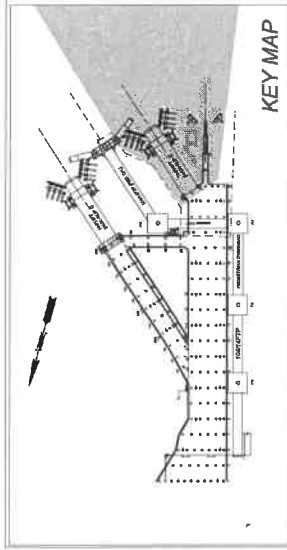
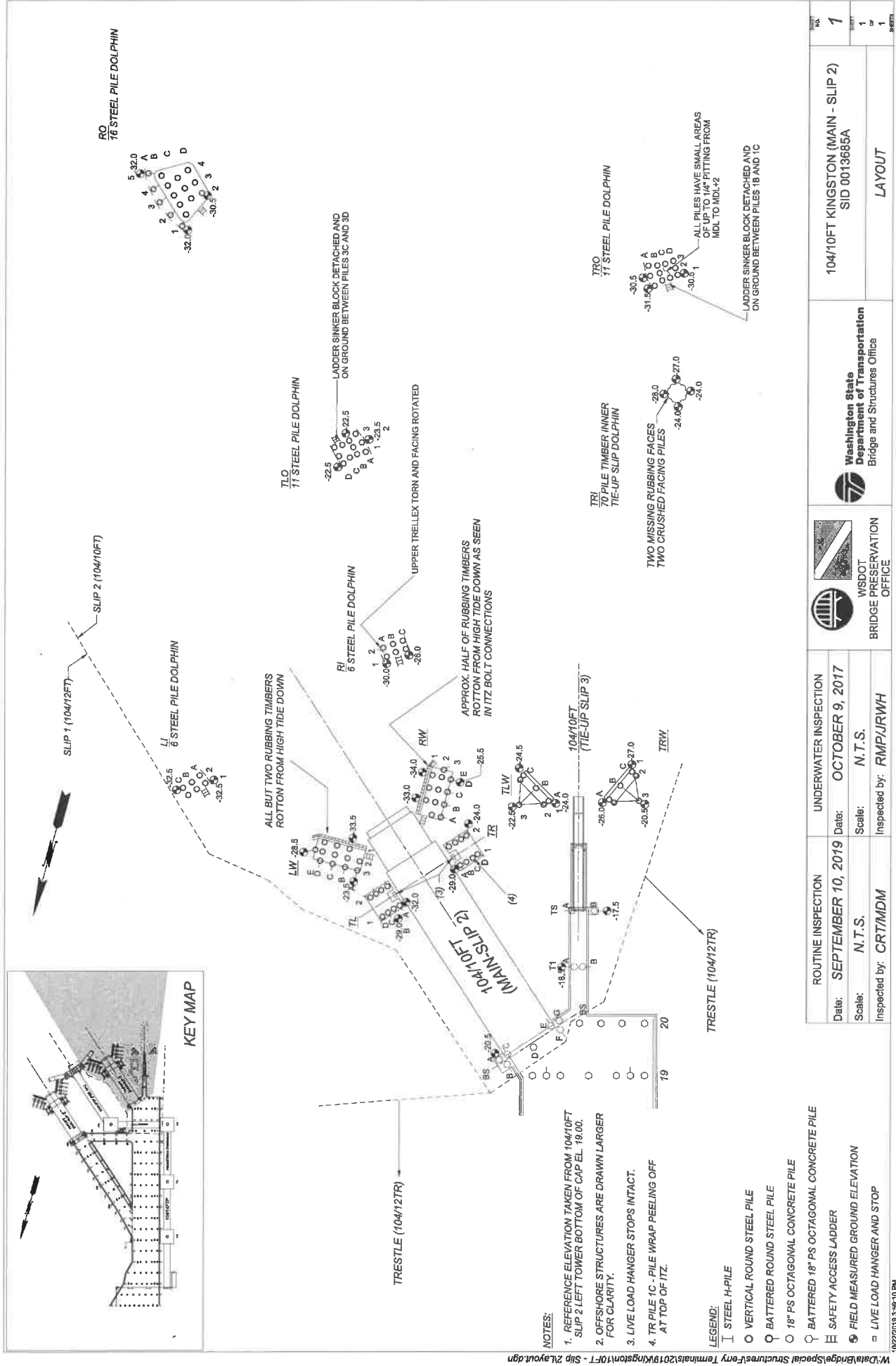
CD Guid: 23c34537-9f46-41cf-90fe-f7c520c7cbaf

Release Date: 11/13/2019

Program Mgr: Evan M Grimm

Br. No. 104/10FT	SID 0013685A	Br. Name KINGSTON (MAIN - SLIP 2)	Route On 00104	Mile Post 24.44
Carrying SR104				
Intersecting APPLE TREE COVE		Route Under	Mile Post	

Entry Name	Folder Name	Type	Repairs	Page
SI-75	0 Orientation	D		1
SI-76	0 Orientation	E		1
UW-0	0 Orientation	W		2
SI-77	8128 Steel Submerged Pile-Column	G		2
SI-78	8128 Steel Submerged Pile-Column	G		3
SI-85	8128 Steel Submerged Pile-Column	G		3
UW-1	8128 Steel Submerged Pile-Column	G		4
SI-67	8206 Steel Floor Beam	R	10	4
SI-66	8206 Steel Floor Beam	R	15	5
SI-74	8224 Thin Polymer Overlay < 0.5" Thick	G		5
SI-88	8225 Non-skid Metal Surfacing	G		6
SI-79	8301 Apron Steel Orthotropic Deck	G		6
SI-70	8307 Apron Lips & Pins	G		7
UW-2	8342 Live Load Hanger Bars (FC)	G		7
SI-82	8343 Apron Two Hinge Pin System/LL Hanger Pins (FC)	R	16	8
SI-86	8343 Apron Two Hinge Pin System/LL Hanger Pins (FC)	R	17	8
SI-83	8419 Concrete Counterweights	R	16	9
SI-71	8451 Steel Pile Frame Wingwalls	G		9
SI-72	8451 Steel Pile Frame Wingwalls	G		10
SI-73	8451 Steel Pile Frame Wingwalls	G		10
SI-84	8451 Steel Pile Frame Wingwalls	G		11
UW-3	8451 Steel Pile Frame Wingwalls	I		11
UW-4	8460 Timber Pile Dolphins	G		12
UW-5	8460 Timber Pile Dolphins	I		12
UW-6	8462 Steel Pile Frame Dolphins	G		13
UW-7	8462 Steel Pile Frame Dolphins	G		13
UW-8	8462 Steel Pile Frame Dolphins	G		14
UW-9	8462 Steel Pile Frame Dolphins	G		14
UW-10	8462 Steel Pile Frame Dolphins	I		15
UW-11	8462 Steel Pile Frame Dolphins	I		15
UW-12	8462 Steel Pile Frame Dolphins	I		16
SI-80	8640 Moveable Pedestrian Gangplank	E		16
SI-87	8640 Moveable Pedestrian Gangplank	D		17
SI-81	8640 Moveable Pedestrian Gangplank	G		17
UW-13	8902 Protective Coating - Piling	I		18
UW-14	8902 Protective Coating - Piling			18
UW-15	8910 Safety Access Ladders	G		19
UW-16	8910 Safety Access Ladders	G		19
UW-17	8910 Safety Access Ladders	G		20



- NOTES:**
1. REFERENCE ELEVATION TAKEN FROM 104/10FT SLIP 2 LEFT TOWER BOTTOM OF CAP EL. 19.00.
 2. OFFSHORE STRUCTURES ARE DRAWN LARGER FOR CLARITY.
 3. LIVE LOAD HANGER STOPS INTACT.
 4. TR PILE 1C - PILE WRAP PEELING OFF AT TOP OF ITZ.

- LEGEND:**
- I STEEL H-PILE
 - O VERTICAL ROUND STEEL PILE
 - Q BATTERED ROUND STEEL PILE
 - 18" PS OCTAGONAL CONCRETE PILE
 - 18" PS OCTAGONAL CONCRETE PILE
 - E SAFETY ACCESS LADDER
 - FIELD MEASURED GROUND ELEVATION
 - LIVE LOAD HANGER AND STOP

ROUTINE INSPECTION	UNDERWATER INSPECTION
Date: SEPTEMBER 10, 2019	Date: OCTOBER 9, 2017
Scale: N.T.S.	Scale: N.T.S.
Inspected by: CRT/MDM	Inspected by: RMP/JRW/H

104/10FT KINGSTON (MAIN - SLIP 2)	1
SID 0013685A	1
LAYOUT	1

Washington State
Department of Transportation
Bridge and Structures Office

WSDOT
BRIDGE PRESERVATION
OFFICE